



PATENT
02581-P0553A WWW/DWA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	Fang Lei
Application No. 10/764,908	Filing Date: January 26, 2004
Title of Application:	Image Transmission System From Three Rod Lenses For Rigid Endoscopes
Confirmation No. 3365	Art Unit: 2872
Examiner	Thong Q. Nguyen

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief Under 37 CFR §41.37

Dear Sir:

A Notice of Appeal from the final rejection of Claims 1-9 and 11-22, all pending claims, of U.S. Patent Application No. 10/722,938 is submitted herewith. Applicant accordingly files its appeal brief in connection with its appeal. A Claims Appendix is submitted herewith, as are Appendices related to evidence previously submitted and decisions related to the case.

Certificate of Mailing: I hereby certify that this correspondence is today being deposited with the U.S. Postal Service as FIRST CLASS MAIL, postage prepaid, in an envelope addressed to: Mail Stop Appeal Brief – Patents; Commissioner for Patents; P.O. Box 1450; Alexandria, VA 22313-1450.

February 1, 2006


Paul J. Bosler

(i) Real Party In Interest

The real party in interest is Karl Storz GmbH & Co. KG, assignee of the patent application.

(ii) Related Appeals and Interferences

There are no related Appeals or Interferences.

(iii) Status Of Claims

Claims 1, 3, 5-9, 11-14 and 16-17 stand rejected and are the subject of the instant Appeal. Claims 2, 4, 15, and 18-22 have been withdrawn, and are also subject to the outcome of this Appeal. Claim 10 has been cancelled. A copy of each of these claims is attached hereto in the Claims Appendix.

(iv) Status Of Amendments

There are no pending or unentered Amendments.

(v) Summary Of Claimed Subject Matter

The present invention, as claimed in independent Claim 1, the only independent claim, relates to an image transmission for endoscopes. Referring to Figure 1, the

system includes a center rod lens (10') and two outer rod lenses (20, 30) which are symmetric about the center plane (100) perpendicular to the optical axis and are positioned vertex-to-vertex adjacent to each other. The center rod lens (10') includes a main element (11') and two biconvex lens elements (12', 13') cemented to both sides to form the biconvex connecting rod lens (10'). The outer rod lenses (20, 30) are biconvex, and the center rod lens (10') is essentially of the same length as, or longer than, the length of each of the outer rod lenses (20, 30). All lens elements comprise optically homogeneous material, and all optically active lens surfaces (1, 2, 3, 4, 5, 6, 7, 8) are spherical.

(vi) Issues To Be Reviewed On Appeal

Claims 1, 8-9, 11-14 and 16 stand rejected under 35 U.S.C. §102(b) as anticipated by Takahashi, U.S. Patent No. 5,743,846 (hereinafter, "Takahashi '846").

Claims 3, 5-7, and 17 stand rejected as unpatentable over Takahashi '846 in view of Takahashi, JP 61-20015 (hereinafter, "Takahashi '015").

Claims 2, 4, 15, and 18-22 have been withdrawn.

(vii) Argument

Claims 1, 8-9, 11-14 and 16

The Examiner's rejection of claims 1, 8-9, 11-14 and 16 under 35 U.S.C. §102(b) is improper because Takahashi '846 does not disclose each and every element recited in claim 1. Specifically, claim 1 requires that "all optically active surfaces are spherical." This feature is illustrated in each figure of the present application, and is explained, in particular, at paragraph 00023 of the specification, which states: "all lens elements are of an optically homogeneous material and all optically active surfaces (1, 2, 3, 4, 5, 6, 7, 8) of all indicated rod lenses are spherical." As illustrated and explained, the present invention comprises a system where all lens surfaces are spherical, and these curved surfaces are all positioned adjacent each other vertex-to-vertex. This is further shown in the Table of Paragraph 00024. This is a central aspect of the invention, which operates to produce the brightest possible image with a relatively simple arrangement of lenses, as is explained in paragraphs 00012-14.

As Applicant explained in its response to the Office Action of April 15, 2005, Takahashi '846 does not disclose this type of arrangement, but instead, describes a system that employs plano-convex lens elements. See 07/14/05 Response at 14-15. The Examiner has never addressed this fundamentally different aspect of the claimed invention and the system disclosed in Takahashi '846. In response to Applicant's argument, the Examiner has "respectfully disagreed and respectfully invited the applicant to review the art of Takahashi and the rejection," and simply pointed to where the Takahashi '846 reference supposedly describes a lens system where all the optically active surfaces are spherical. See 10/03/05 Office Action at 8. However, the

Examiner again only generally referred to this portion of the reference—namely, Table 7 in columns 49-50 (erroneously referenced as ‘Table 9’ in the Takahashi patent)—without addressing the fact that this disclosure actually describes a system employing plano-convex lenses.

Accordingly, Applicant specifically explained how these specific portions of Takahashi ‘846 pointed to by the Examiner do not disclose a lens system where all the surfaces are spherical. See 12/01/05 Response at 7. This is shown in the figure cited by the Examiner (Fig. 21), which clearly illustrates that some of the lenses are plano-convex. Additionally, in the Table 7 referenced by the Examiner, these surfaces are specifically designated as having infinite radii of curvature—in other words, they are planar. Accordingly, the illustration and information in the figure and table that are cited by the Examiner do not disclose the use of lens surfaces that are all spherical. To the contrary, they specifically teach to use a lens system with some surfaces that are *not* spherical. Though Applicant again requested that the Examiner articulate the specific basis for any conclusion to the contrary, the Examiner again declined to address why he believes all the surfaces of the system described in Takahashi ‘846 are all spherical. See 12/28/05 Advisory Action.

For the reasons explained above, the Takahashi ‘846 reference simply does not disclose a lens system where all the optically active surfaces are spherical. Therefore, because the Takahashi ‘846 reference does disclose each and every element of the invention recited in claim 1, the rejection under 35 U.S.C. § 102(b) is improper.

Additionally, Applicant also notes that an alternative rejection under 35 U.S.C. § 103 would also be improper, because the invention of independent of claim 1 is not rendered obvious by Takahashi '846. In order for the claimed invention to be obvious over the prior art, there must be some suggestion or motivation in the reference to make the relevant modification. See, e.g., MPEP 2143.01; *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990). There is no such suggestion in the Takahashi '846 reference to modify the relay lens system identified in Figure 21 of the reference. Takahashi '846 is directed to a system using two "front" negative lens units arranged in parallel with each other and arranged to be substantially symmetrically concentric about an optical axis of a single "rear" positive lens group and spaced to be afocal in order to allow a plurality of images having parallax between them to be substantially superimposed on one another. Indeed, Takahashi even notes that this is for "transmission by a *common* relay lens system or for reception by electronic image pickup devices." See, e.g., Abstract; Col. 1, ln 7-11. There is no suggestion to alter the cited relay lenses or that it would be desirable to make modifications thereto in order to maximize the brightness of the image. Takahashi '846 does not teach or suggest the use of a series of lenses as recited in claim 1 where "all optically active surfaces" in that series are spherical.

Claims 3, 5-7 and 17

The Examiner's rejection of claims 3, 5-7 and 17 under 35 U.S.C. §103 is improper because it is premised on the conclusion that Takahashi '846 discloses a lens system where "all optically active surfaces are spherical." For the reasons explained above, Takahashi '846 does not disclose a system where the optically active surfaces of the center lens element and the two outer rod lens elements are all spherical, but rather, teaches the use of plano-convex elements. Therefore, the asserted combination does not disclose all the elements recited in these claims.

Additionally, the Examiner's rejection of claims 3, 5-7 and 17 under 35 U.S.C. §103 is improper because each of these claims all include limitations to specific configurations of lens elements. Specifically:

- Claim 3: Claim 3 recites that rod lens main element is a biconcave lens and the lens elements cemented to it are biconvex lenses.
- Claims 5-7: Claim 5 (and its dependent claims 6-7) recites the rod lens main element is a biconvex lens, and the lens elements cemented to it are meniscus elements.
- Claim 17: Claim 17 recites that each of the outer rod lenses is of one piece.

Acknowledging that these particular configurations are not disclosed in Takahashi '846, the Examiner has asserted that these claims are nevertheless unpatentable over this reference in view of another reference—Takahashi '015. The Examiner has stated that

these configurations are disclosed in this other reference, and therefore, that “it would have been obvious to one skilled in the art at the time the invention was made to modify the image transmission system as provided by” Takahashi ‘846 with one of the configurations disclosed in Takahashi ‘015 “for the purpose of providing other means for correcting the image aberrations.” 10/03/05 Office Action at 7.

The Examiner has not provided any supposed motivation for “providing other means” for correcting image aberrations. As previously noted, in order for the claimed invention to be obvious over the prior art, there must be some suggestion or motivation to make the relevant combination and modification, which cannot come from the applicant's own disclosure. *See, e.g., In re Oetiker*, 977 F.2d, 1443, 1447 (Fed. Cir. 1992). The fact that a reference can be modified is not sufficient—there must be some suggestion to do so in order to render the claimed invention obvious. *See In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) (though prior art “may be capable of being modified to run the way the apparatus is claimed, there must be some suggestion or motivation in the reference to do so.”); MPEP 2143.01 (“The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.”).

Here, there is no suggestion to modify the design of Takahashi ‘846 to arrive at the claimed invention, and the Examiner has not identified one. Indeed, Takahashi teaches against doing so, as it already teaches the specific design of using, for its center lens, a planar rod lens with plano-convex lenses cemented to its ends, and for the

outer lenses, biconvex lenses with meniscus lenses cemented to the ends adjacent the center lens. There is no suggestion in this prior art that one should completely change the basic design specifically taught by Takahashi '846 in order to arrive at the claimed configurations.

Claims 2, 4, 15 and 18-22


Claim 1 is generic to all of the withdrawn claims. Accordingly, if claim 1 is allowed for the reasons set forth above, Appellant submits that claims 2, 4, 15 and 18-22 are likewise allowable.

Conclusion

For all of the foregoing reasons, it is submitted that the claimed invention is patentable over the cited art. Accordingly, it is submitted that the rejection of claims 1, 3, 5-9, 11-14 and 16-17 should be reversed, and accordingly, that withdrawn claims 2, 4, 15, and 18-22 should be reinstated, and it is respectfully requested that the Examiner be directed to issue a Notice of Allowance allowing claims 1 -9 and 11-22.

Respectfully submitted,

February 1, 2006



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**Claims Appendix
to Appeal Brief Under 37 CFR §41.37
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1. Image transmission system for rigid endoscopes and similar viewing tubes with a center rod lens and two outer rod lenses, which are symmetrical to one another with respect to a center plane of the image transmission system that is perpendicular to the optical axis of the image transmission system, wherein

all lens elements consist in each case of optically homogeneous material,

all optically active surfaces are spherical,

the center rod lens consists of a rod lens main element and lens elements cemented to it, resulting in a biconvex connecting rod lens, and

the outer rod lenses are biconvex, wherein

the rod lenses are vertex-to-vertex adjacent to one another and

the center rod lens is essentially of the same length as, or longer than, the length of each of the outer rod lenses.

2. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the outer rod lenses consist of rod lens main elements and lens elements cemented to them on the side turned inward, so that the result is biconvex connecting rod lenses

3. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element is a biconcave lens and
the lens elements cemented to it are biconvex lenses.

4. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 2, wherein

the rod lens main elements are convex lenses on the side turned outward and are concave lenses on the side turned inward, and

the elements cemented to them on the side turned inward are biconvex lenses.

5. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element is a biconvex lens, and
the lens elements cemented to it are meniscus elements.

6. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 5, wherein

the meniscus elements are positive meniscus elements.

7. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 5, wherein

the meniscus elements are negative meniscus elements.

8. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the length of the center rod lens essentially corresponds to the length of each of the outer rod lenses.

9. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element are symmetrical with respect to its center plane that is perpendicular to the optical axis.

11. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the center rod lens includes ends that are symmetrical with respect to a symmetry plane that runs through the center rod lens perpendicular to the optical axis.

12. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the center connecting rod lens is symmetric with respect to a symmetry plane running through the center rod lens perpendicular to the optical axis.

13. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the lens elements cemented to the rod lens main element are symmetrical to one another with respect to a symmetry plane running through the center rod lens perpendicular to the optical axis.

14. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element of the center rod lens and the lens elements cemented to it configure the center rod lens as a cylinder.

15. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main elements of the outer rod lenses and the lens elements cemented to them configure the outer rod lenses as a cylinder.

16. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

no distancing tubes are used between the rod lenses.

17. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

each of the outer rod lenses is of one piece.

18. Image transmission system for rigid endoscopes and similar viewing tubes

according to claim 1, wherein

the outer rod lenses are connecting rod lenses, which include rod lens main elements and have lens elements cemented to them on the side turned inward, so that the resulting connecting rod lenses are biconvex.

19. Image transmission system for rigid endoscopes and similar viewing tubes

according to claim 18, wherein

the outer rod lenses are connecting rod lenses, which include rod lens main elements and lens elements cemented to them on the side turned outward, so that the resulting connecting rod lenses are biconvex.

20. Image transmission system for rigid endoscopes and similar viewing tubes

according to claim 2, wherein

the center rod lens is in one piece.

21. Image transmission system for rigid endoscopes and similar viewing tubes

according to claim 2, wherein

the center rod lens is a connecting rod lens, which has a rod lens main element to which lens elements are cemented to its side turned outward, so that the resulting connecting rod lens is biconvex.

22. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 2, wherein one of more of the lens main elements can be equipped with a number of lens elements cemented to it on the side turned outward or cemented to one another.

**Evidence Appendix
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No evidence of any kind, including evidence submitted under 37 CFR 1.130, 1.131 or 1.132, has been entered by the Examiner and relied upon by Appellant in the appeal.

**Decisions Appendix
to Appeal Brief Under 37 CFR §41.37
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There are no related Appeals or Interferences. As such, there are no decisions rendered by a court or the Board in any such Appeals or Interferences.